MEETING MINUTES
(Approved by TAC as "DRAFT")

HABITAT CONSERVATION PLAN
Technical Advisory Committee Meeting
Wednesday, February 21, 2007, 1pm to 3pm
Arizona Game and Fish Department Conference Room
555 North Greasewood
Tucson, Arizona 85745-3612

ATTENDEES

City of Tucson Technical Advisory Committee: Trevor Hare (Sky Island Alliance / Coalition for Sonoran Desert Protection), Rich Glinski (Arizona Game and Fish Department – *retired*), Marit Alanen (U.S. Fish and Wildlife Service), Dennis Abbate (Arizona Game and Fish Department), Ralph Marra (Tucson Water Department), and Guy McPherson (University of Arizona).

Other Attendees:
Jaimie Galayda (Arizona State Land Department);
Leslie Liberti (City of Tucson – Office of Conservation and Sustainable Development);
Dennis Rule (Tucson Water Department);
Lori Anderson (Coalition for Sonoran Desert Protection);
Scott Richardson (U. S. Fish and Wildlife Service);
Douglas K. Warren (Darling Environmental and Survey, LTD).

1. Minutes from the 2-7-07 TAC Meeting

Minutes from the 2/7 meeting will be addressed at the 3/7 meeting. Rich agreed with Ralph's comments in addition to his revisions. We will reconsider these at the end of the meeting.

2. Updates

None shared

3. Discussion with Scott Richardson (USFWS)

Lesser long-nosed bat (LLNB)
Scott Richardson attended the Technical Advisory Committee (TAC) meeting to address the subject of lesser long-nosed bat (LLNB). He pointed out that there is much they do not know about this species. Scott provided background regarding the relationship between LLNB and Habitat Conservation Plans (HCPs). Dennis A. provided a handout illustrating additional information about the LLNB. Pima County, the Town of Marana, and the City of Tucson (COT) are all engaged in habitat conservation planning, and LLNB has been addressed in all these

processes. He mentioned that the criteria for inclusion in the planning area are: 1) if LLNB occur there; and 2) if there is potential for take to occur there. The answer to both of these questions is yes for the Town of Marana and for the COT HCPs, and so it does meet the requirements to be covered in an HCP.

Even though the cactus ferruginous pygmy owl (CFPO) was delisted last May, it is still addressed in the HCPs, since its future status is currently undecided. The COT and Town of Marana HCP measures written specifically for the CFPO were originally expansive enough that they also provided coverage for the LLNB, so specific measures to address the LLNB had not been described. Scott pointed out that there must be at least one listed non-plant species in order to have an HCP. The LLNB is now the listed species for the two City HCPs, and so it is necessary to provide explicit conservation measures for LLNB. In the past, the COT had one combined HCP. But now, Avra Valley and the Southlands have been split, so we need to determine if LLNB occurs in Avra Valley and if there is potential for "take" there. So, USFWS has been addressing these questions and has concluded that for Avra Valley, these two criteria are still met. In terms of take, the needs of the LLNB are: 1) roost sites (maternity, transition, night roosts); 2) foraging resources (pollen, nectar, saguaro fruits, agave nectar and pollen, and hummingbird feeders); and 3) habitat connectivity (ability to move between forage resources and roosts).

LLNB typically roost in caves and mines, which probably do not exist on Tucson Water land in Avra Valley, but there are caves and mines known from surrounding areas. Avra Valley is within foraging distance from these roost sites. However, are foraging resources present in Avra Valley? As Avra Valley is mostly comprised of abandoned farmlands, there are probably no foraging resources available that would be directly affected by activities in Avra Valley. The third factor to address is connectivity/movement corridors. LLNB are known to fly fast, and to cover large distances. They can travel up to 40 miles or more from a roost site and back in one night. More typical distances observed are 5 to 15 miles from roosts each night. If foraging resources are located close to the roost, LLNB tend to use these rather than traveling far. This is significant, because in 2004 there was a failure of saguaro blooms in the southern and western parts of the state that year, but LLNB stayed at the same roosts they typically used, including the maternity roost in Organ Pipe National Monument. It was observed that LLNB were foraging on *agave desertii* in the absence of saguaro, and had to travel much longer distances to forage. Last year, agave flowering largely failed. Roost sites shifted somewhat as a result of this, e.g., Tucson roosts had more LLNB, and others to the southeast had less. Tucson roosts still had LLNB present into October, which is later than usual. Hummingbird feeders were reported to have many more LLNB visits last year, and it appears that LLNB were using these as their primary forage source.

LLNB will use what they can and they need corridors to move, typically through natural, native vegetation within riparian areas. After foraging for awhile, they often hang in an area (night roost) and then resume foraging. Night roosts can be buildings, trees, bridges, and other sites. It is important that natural vegetation be present within these Avra Valley corridors, as there are roost sites and foraging resources located on both sides of Avra Valley. LLNB need movement corridors across Avra Valley to move between these sites.

"Take" is defined beyond "killing"; it also involves impacts preventing species from undertaking their normal activities. Any disturbance that prevents movement through movement corridors would constitute "take." Last year, biologists observed things that they had never recorded before regarding LLNB activity. Arizona Game and Fish Department (AGFD) staff put transmitters on several LLNB to track their movement back to the east side of town. It was observed that they traveled around the periphery of the city instead of directly over. We certainly cannot reach any conclusions from the behavior of only two LLNB, but it is of interest.

Scott brought in a report by Sandy Wolf that looked at hummingbird feeder use by bats. Her monitors observed feeders restricted to the east side of Tucson and the Catalina Foothills region. There is very little information on the west side of Tucson and Avra Valley, so equivalent data does not exist for that area. As LLNB invaded the urban area last fall, the Arizona Sonora Desert Museum (ASDM) and other entities received numerous calls about bats showing up at feeders where they had not been seen before, as far west as Continental Ranch on the west-side of Tucson. The U.S. Fish and Wildlife Service (USFWS) is confident that LLNB are here and that there is the potential for "take" to occur.

At a meeting conducted last week, it was decided to gather more data regarding LLNB visits to feeders on the west-side and Avra Valley. Hopefully, we will get more information about their movement patterns; doing so will require telemetry studies. Dennis asked, regarding LLNB using feeders when natural forage is failing, if there is any reason to think LLNB could use urban plants that might not be as affected by drought as wild plants are. Scott thought that agave and saguaro blooms in town probably did not fail as much as wild ones and bats may be using these. **It may be necessary to look into this**. Pollen samples were taken from the telemetry LLNB last September, but these have not yet been analyzed. **We would also need to look into the flower structure of the common landscape agave species to see if they could be used by LLNB.**

Scott noted that LLNB have been using feeders for a long time. They may be using them more often now in light of recent drought conditions and reduced forage availability in the wild. Ralph asked if LLNB are being found at feeders. Scott said that LLNB and Mexican long-tongued bats are nectar-feeding bats, and these are the species found at the feeders. Rich wondered if bats will return in larger densities now that they have discovered the feeders, as similar behavior has been observed in other species. Rich also wondered if LLNB will be more common in the Tucson area over the next ten years because feeders are so readily available. If there are sufficient roost sites in the area, this may occur. We would need to make sure that the connectivity is maintained in urban environments. Scott also mentioned that there were increased reports of mortalities along with the increased use of feeders. Toxins, pets, ceiling fans, and other threats related to the urban environment could impact bats. Scott said that roost sites are also limiting. **We need to look into the nutritional value of hummingbird feeder food for bats.** Rich said that feeder food is pure sugar, and he wondered what the nutritional contrast is between that and the pollen and nectar of saguaros. Scott said LLNB also consume saguaro fruit, which adds to their nutritional value.

Rich noted that saguaro blooms can be affected by cold and drought, so LLNB need to be adaptable. Scott said they are adaptable, but that they do need to have roost sites available. Historically, they used Colossal Cave, but that roost has now been abandoned. But there are maternity roosts available west of Avra Valley currently. **We need to find out if LLNB are coming from the roosts west of Avra Valley to use saguaros, and where their larger scale movement patterns occur back and forth between Mexico and Arizona.**

Dennis R. asked for examples of specific activities that would constitute "take" in Avra Valley, and what could be done to mitigate these impacts. Scott said that fragmentation of washes and drainages would constitute the main form of "take." Scott pointed out that telemetry LLNB were primarily observed moving through drainage corridors containing taller canopy cover. Noise and human activity may also affect LLNB, while lights may not provide much impact. Scott does not know what it is that causes LLNB to avoid the Tucson metropolitan area when traveling between roost sites and foraging areas; the amount of human activity? noise?

Rich asked about the telemetry data and Scott explained that the study involved two LLNB over a period of two nights, and that two people were involved. Scott referred to the map, pointing out that the path taken by these telemetry LLNB takes several hours. Dennis A. noted that there is a buffer around the line shown on the map, but the buffer width was within a few hundred meters. Dennis A. said that they follow the LLNB in a truck, tracking the beep of the device. Rich wondered if the data were sound; if the bats zigzag in flight, would this be detected by the monitors. Scott explained that the transmitters are small, so you have to be close to the bats to pick up the signal; thus, the route taken by the telemetry bats should closely match the line shown on the map, including the buffer. The telemetry bats were caught in Northwest Tucson, but roost southeast of Tucson. Dennis A. said that they are not necessarily taking this specific route to avoid anything; however, he said that does appear to be the case based on preliminary data for two LLNB, which illustrates the need to get more data to better understand this behavior.

Scott believes the data is interesting and important. Rich said he does not trust this data, and that we need to get better data, which is not going to be cheap. We need to better define LLNB foraging and connectivity routes. Dennis A. noted that when tracking a fast moving critter like this, you get a small amount of information regarding time and location, with error. If you catch LLNB at a night-roosting site, then you get a specific location to track. Rich said that it is hard to get this data, and that we need to be cautious about recommending landscape attributes, etc. based on uncertain data.

Scott said that the major LLNB maternity roost sites in southern Arizona include: 1) Old Mammon Mine, a maternity site southwest of Casa Grande in the Slate Mountains; and 2) Bluebird and Copper Mountain mines (both located on the Organ Pipe Cactus National Monument). Closer to Tucson there are at least two non-maternity roosts in the Rincon Mountains; several roosts in the Santa Ritas; and historical roosts exist at Picacho Peak, Sawtooth Mountain, and Brown Canyon and Diamond Bell (both located in Altar Valley). Biologists do not know the locations of all roost sites. The Waterman Mountains, Silver Bell Mountains, and Tucson Mountains all have potential. An historical record also exists at Redington Pass. Kartchner Caverns is only known to have cave myotis. Rich asked about the characteristics of these roost sites. Scott said that these are colonial roosts, containing several hundred, and sometimes up to 25,000 (Organ Pipe Cactus National Monument roosts) or even 100,000 bats (Pinacate Lava Tubes in Northern Mexico). These are large, deep caves with large openings. AGFD has studied microclimate characteristics.

Dennis R. asked about the recent Pima County Southwest Infrastructure meeting. There are 150,000 to 180,000 people projected to inhabit the southwest part of the Tucson Mountains in the near future. He wondered if that activity is more significant than what the COT is planning to do in Avra Valley. Scott noted that Pima County development is covered under their HCP, so they will need to mitigate for development and to maintain foraging habitat. Scott mentioned that the CFPO protection measures that have already been developed will be similar to what is needed for LLNB. Trevor noted that 80 to 95 percent set-aside is needed within biological core and important riparian areas. Scott said that the Ajo corridor is important to connectivity.

Leslie noted the importance of looking at adaptive management, having learned this from Marana's HCP effort. Dennis A, Trevor, and Rich are also serving on committees for the Marana HCP effort. We need information regarding Marana's LLNB discussions. We also need to look at a broader perspective to understand the implications of conservation needs, etc. Rich said that Dennis A. will get some interest backing additional LLNB research and that if several groups contribute, we could potentially get the better data that is necessary in making the correct decisions regarding LLNB. He is hoping that Bat Conservation International, Pima County, the

Town of Marana, and the COT will all contribute. The burrowing owl, snakes, desert tortoise, and other species have similar issues. Foraging habitat in the Tortolita Fan is an issue for the Town of Marana, and the river corridor is also a factor. However, Avra Valley does not have much foraging habitat.

Scott said there is a need to check known roost sites more often. USFWS visited these sites last year, but before that, the last site visit was in the 1980s. USFWS will regularly monitor the roost sites from now on. If roosts are active, the bats need to forage somewhere relatively close by. Bats are listed as a priority for monitoring in Pima County. Within the vertebrate monitoring group, bats are the highest priority. USFWS conducts simultaneous annual maternity counts once a year at selected roosts, and then conducts simultaneous counts in August for known roosts. AGFD coordinates these surveys and has the data for the last five years. Pima County just bought Coal Mine Springs to protect fish and they have detected a LLNB roost there, but it has not been monitored yet. Trevor thought that the Arizona State Parks Department added this monitoring into their budget.

Scott said that they do not show roost sites on maps in order to avoid people impacting these areas. Because LLNB use such broad habitat, critical habitat will not be mapped. Ralph asked if the memo read at the last meeting implies that USFWS has made a determination, and whether the telemetry data was the basis for that. Leslie said the determination is that LLNB are present in the planning area, and so there is potential for "take." Scott said that when the USFWS Tucson Office originally looked at LLNB as the only listed species in Avra Valley (with "take" defined as harassment and harm), they decided to run the idea through the USFWS Regional Office. This wasn't necessarily a "determination" as the LLNB has been there all along; USFWS just wanted to make sure that this definition of "take" was appropriate. Dennis R. wondered whether this meant that the decision was not necessarily a determination that these particular activities would cause "take." Scott responded that fragmentation would cause the "take," and that including the LLNB does not necessarily mean that "take" will occur, but we need to look at potential impacts.

With Avra Valley separate from the Southlands, we need to make sure it is a legitimate site for potential "take." Leslie stated that there is synergy between LLNB and the CFPO, and Trevor thinks the CFPO will be re-listed. Rich thinks augmentation might avoid the re-listing and asked if biologists have identified anything regarding artificial habitat for bats. Scott said that artificial roosts have been used for bats, but not LLNB. Trevor said the potential for "take" increases exponentially if there are artificial roost sites that concentrate the animals; and Central Avra Valley Storage and Recovery Project (CAVSARP) has loud pumps, so it would not be a viable site for artificial roosts. Rich said that if you avoid building structures that LLNB may use; this would be a missed opportunity. Big-eared bats also use the area, as do California leaf-nosed bats, cave myotis, etc. Trevor wondered if insectivorous bats are foraging over the recharge basins. Scott said this was certainly possible.

Discussion of other species and interjurisdictional cooperation

Leslie asked if there have been recent surveys conducted by other jurisdictions, new assessments of impacts, etc. for the desert tortoise, burrowing owl (BUOW), or other species. She asked whether it would be useful to organize an interagency workshop for LLNB, BUOW, desert tortoise, snakes, etc. between the Town of Marana, the Tohono O'odham Nation, the COT, Pima County, USFWS, AGFD, etc. This could result in information exchange and ideas as to how conservation strategies and adaptive management and monitoring may overlap between involved parties. We need to discuss individual species in addition to Pima County's Conservation Land System (CLS). Scott asked whether this was in relation to implementation, or in developing the HCP. Leslie responded that the issues will vary by species, and she used the desert tortoise as an

example of a regional issue for which we are still gathering information. For the BUOW, we need to address outstanding questions from the COT and the Town of Marana, such as the value of Burrowing Owl Management Areas (BOMAs), the impacts of hacking birds from Phoenix, and the potential conflicts that the Santa Cruz River restoration projects may have with the HCP. For the snakes, we need to find out if Pima County is going to cover them in their Multi-species Habitat Conservation Plan; and if not, decide whether the Town of Marana and the COT should still protect them. Marit asked if these meetings already have occurred. Trevor said the monitoring workshops are a good start, and that Pima County is currently at the stage of developing a bat management plan. Providing input from all jurisdictions would develop synergy, so that others could use what Pima County develops. The Coalition for Sonoran Desert Protection could help organize this, and Leslie, Jennifer Christelman (Town of Marana), and Julia Fonseca (Pima County) should meet initially to get the process started. Leslie said that we have many questions related to BUOW and some for LLNB; she could draft an agenda and a list of what needs to be accomplished to start the process. Tim Snow or Angie McIntire, Bat Management Coordinator, for AGFD could provide input regarding bats, while David Grandmaison and Mike Ingraldi could provide information for BUOW. Scott said that Pima County is looking at "big picture" monitoring, rather than individual species, so maybe the COT should look at Pima County's individual species conservation recommendations for consistency between jurisdictions, instead of looking at monitoring.

***** TAC members will email questions regarding this to Leslie***

4. Avra Valley Revised Draft HCP Discussion

Trevor mentioned that when you go to a specific objective, using the CFPO as an example, the language says "Reduce barriers to movement, reduce mortality." Trevor wants one or two specific sentences about what the mechanism will be to address these points in the early part of the chapter. Leslie referred him to section 5.3.2 detailing what the specific measures would be. Starting at page 31, information about barriers and mortality begins. Trevor saw this, but reiterated that a short sentence or two up front would be sufficient. Rich noted the need for consistency, information, completeness, legal status, species status in Arizona, and other key points. Each discussion should have the same points addressed; currently some of this appears in the second section. Leslie would need to make these specific to species, and add a sentence on "how" for the goals. Rich pointed out that there is a need to check the text numbers and table numbers against data sheets.

The TAC further discussed comments on chapter 5. In the "phasing" section of chapter 5, it was mentioned that Leslie should change individual projects being "implemented," to individual projects being "planned". In section 5.3.2, "Maintaining suitable habitat within planning area," the text does not refer to specific acreages. Rich noted his editing comments in section 5.3.2.1. This section introduces the concept of Conservation Priority Areas, but makes no explicit reference to BUOW. Leslie explained that this was intentional and asked if this was adequate, otherwise they would have to go outside the CPA. Trevor and Rich agreed that this was acceptable. Rich pointed out that a BOMA is an enhancement and that mesquite planting around the project perimeters is an enhancement, but the concept of enhancement itself is not discussed. We should add a sentence to address enhancement in 5.3.2.1, something that demonstrates our recognition that enhancement increases suitability. Leslie then described the four options for conservation, both inside and outside the planning area.

On page 11, Trevor pointed out that the tables will need to be updated. He also mentioned that the mitigation experts have not reviewed the mitigation ratios yet, but Trevor feels comfortable with Leslie's justification for these. He also mentioned that restoration does not typically have a high potential for success. Leslie said that she was focusing on dispersal, and if you can get a favorable mix of tree species and the correct configuration, you can recreate corridors. Trevor wants to know what the stakeholders think, most notably Tucson Water Department and the Resource Planning Advisory Committee (RPAC). Lori said that Tucson Water is the client, RPAC is the stakeholder group. Ralph said that it is still under review. Leslie asked if there were any more issues with Tables 4 and 5 which follow directly from Table 3, all tables reflecting the primary mitigation ratios. Trevor wondered about restoration acreage for BUOW and the LLNB, specifically for restoration of habitat in the same block. Leslie said that creating BOMAs improves the value of the area as suitable habitat due to the use of artificial burrows and through the protection of burrows, giving managers more control over the BOMA than in natural habitat. So, two acres of natural habitat is worth the same as one acre within a BOMA. Trevor said that if any of the experts have concerns, he will pass these on to Leslie.

Leslie mentioned that on page 16, for all of the tables, you can remove 100 percent of the habitat in any given block. She asked whether we need to specify an upper limit for this from any given block, or if removing 100 percent from a block is acceptable as long is it is mitigated elsewhere. Lori asked if there was enough land available for mitigation. Leslie said that all potential impacts could be mitigated for within the planning area. There are issues with the upper limit of potential loss per block though, as we need flexibility for infrastructure in case it increases. Leslie mentioned that maybe we need to develop guidance on general impacts such as staying out of riparian areas, etc., which might trigger closer review if general criteria are exceeded. Ralph requested clarification of this, so Leslie gave an example. She described a scenario in which a recharge basin was proposed to be placed such that it violates this principle of not impacting riparian stringers. The general mitigation requirements are clearly outlined in this chapter, but we may still need to discuss this with the USFWS to see if it is acceptable. Then we would negotiate potential mitigation for this, using site specific issues in the discussion.

Rich suggested that if you wipe out the species in that block, then maybe you would need to mitigate at a greater intensity. Leslie asked if he was suggesting that we bifurcate the mitigation ratios outside the Conservation Priority Area (CPA) and inside the CPA. Trevor said that this would result in greater flexibility. Rich asked what the threshold would be and Leslie wondered if he was referring to inside or outside of the CPA. She further noted that you have some flexibility, but conservation in the planning area would be greater. Trevor mentioned that the snakes need more protection.

5. Call to audience

No members of the public were present at this meeting.

6. Adjournment